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## Hypo-immunogenic cardiac patches for myocardial regeneration

### Grant Award Details

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Hypo-immunogenic cardiac patches for myocardial regeneration

**Grant Type:** Inception - Discovery Stage Research Projects

**Grant Number:** DISC1-09984

**Project Objective:** To engineer hypo-immunogenic cardiac patches that can assist left ventricle (LV) function after myocardial infarction without causing an immune response after allogeneic transplantation.

**Investigator:**

<b>Name:</b>	Sonja Schrepfer
<b>Institution:</b>	University of California, San Francisco
<b>Type:</b>	PI

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**Disease Focus:** Heart Disease

**Human Stem Cell Use:** iPS Cell

**Award Value:** \$238,500

**Status:** Active

### Grant Application Details

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**Application Title:** Hypo-immunogenic cardiac patches for myocardial regeneration

**Public Abstract:****Research Objective**

To engineer a cardiac patch to restore function after a heart attack while avoiding an immune response ("hypo-immunogenic" CP) when transplanted into a genetically distinct ("allogenic") individual.

**Impact**

By making hypo-immunogenic CPs and functional cardiac cells (induced pluripotent stem, "iPS" cells) available to commercial/research entities, our study can fuel the transformation of healthcare.

**Major Proposed Activities**

- To generate human cardiac patches using human hypo-immunogenic iPS cell-derived cardiomyocytes and endothelial cells and perform optical mapping of the epicardial surface after transplantation.
- To study the survival of hypo-immunogenic cardiac patches after myocardial infarction as well as their immunological acceptance and integration.

**Statement of Benefit to California:**

Cardiac patches with hypo-immunogenic iPS cells have potential to restore function and prevent immune rejection, eliminating costly complications of systemic immunosuppression after pluripotent stem cell transplantation. Besides its enormous potential to improve the health of California residents, our breakthrough would also inevitably lead to licensing opportunities as well as FDA-approved cell regeneration therapy, which would generate significant future revenues for the State of California.

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